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DOCUMENTS, REPORTS, AND LEGISLATION

Industries and Commerce

A NOTABLE FARM MANAGEMENT SURVEY. The Office of Farm Management in the United States Department of Agriculture has recently published a bulletin entitled *Farm Management Practice of Chester County, Pa.*, by W. J. Spillman, H. M. Dixon, and G. A. Billings (Washington, No. 341, Jan. 17, 1916, pp. 99). That this publication is of more than local application is indicated by its objects: (1) To work out a method of studying regional farm management problems; (2) to discover fundamental principles of farm management; (3) to work out the application of these fundamental principles to the agriculture of a definite agricultural region. While the farm management survey method was originated by Professor G. F. Warren, of Cornell University, and has been in use for about ten years, the bulletin under discussion goes a long way toward standardizing methods of investigation and interpretation of results in the light of economic principles. The fundamental data are contained in detailed schedules filled out by trained investigators who interviewed the farmers. In addition to this, considerable information of a historical and statistical nature has been collected. In this study, 378 farms are brought under survey.

One of the most fundamental conclusions reached is in flat contradiction of the much exploited advantages of a "small farm well tilled." This conclusion is entirely consistent, however, with the results of farm management studies elsewhere. To quote: "Success in farming, measured in terms of the family income and standard of living, is directly proportional to the magnitude of the farm business, although the per cent of profits on the farm investment is, within wide limits, independent of the magnitude of business." The first point involved in this conclusion is demonstrated by the fact that the labor income, which is the amount that the farmer earns by his own labor above all expenses including the cost of unpaid family labor and interest on investment, increases steadily with the size of the farm, and that even a more marked increase is shown in the percentage of the farmers in each size group that earn over \$1000. On farms of under 40 acres only 6 per cent of the farmers make as much as \$1000, while on farms of over 160 acres 68 per cent make that amount or more. On the other hand, figures are presented to show that there is comparatively little relationship between the size of farm and the interest

on the capital invested. In other words, capital will, on the average, earn the amount usual for the region whether it is invested in a small or in a large enterprise, but labor will not receive anything like the same reward when expended on a small farm. Small farms do not provide a sufficient number of working days to keep the men or the horses employed throughout the year; the number of crop acres per man is more than twice as great in the larger as in the smaller farms, and consequently the expense of man labor per crop acre is much greater on the smaller than on the larger farms. The value of machinery per crop acre is also much greater on the small farms, and that in spite of the fact that the small farms are much less adequately equipped than the large ones.

"In the matter of yield of crops per acre the point of diminishing returns is reached on a considerable proportion of farms." To illustrate, the greatest excess over the average labor income is found on farms where the crop index, that is, the ratio of crop yields on each given group of farms to the average for the region, is between 115 and 139. On the farms having a higher crop index the labor income is less than in the preceding group; that is, the law of diminishing returns is very clearly operative in the business of the farmers included in the survey. On the other hand, in the quantity of product per dairy cow the point of diminishing returns is not reached in ordinary farm practice in Chester County, hence on dairy farms quantity of product per cow is, on the average, a more important factor of success in farming than is yield of crops per acre.

As a complement to the last two propositions the further conclusion is reached that: "It is both easier and more profitable to increase low acre yields than high ones and a small product per cow than a large one." Since it is increasingly expensive to increase the yields as they become higher, it is logical that profits can be increased most easily by attention to the weakest points in the system of farming.

One of the objects of the investigation was to determine more definitely the relation to the final income of the apportionment of acreage to different operations. This proposition is proved by the circumstance that the best results in this region are obtained by devoting from 30 to 39 per cent of the crop acreage to corn, a fact that was appreciated by only comparatively few of the farmers, since 188 of them were devoting only from 20 to 29 per cent of the acreage to corn and 138 less than 20 per cent. Similarly it is shown that the highest labor incomes were earned by farmers who derived between 1 and 20 per cent of their income from the sale of corn, while the

majority of the farmers did not sell any corn and had labor incomes below the average.

Again it is shown that certain enterprises may be distinctly profitable when occupying a minor position in the farm business and distinctly unprofitable if made major enterprises. For instance, it is clearly profitable to have some acreage in fruit, for the farmers who have none show labor incomes below the average, but it is better to have no fruit at all than to have more than 5 acres of it, unless the farmer has had special experience in fruit growing and marketing, for the farmers who have more than 5 acres have an average labor income less than half as great as the average for the region. So too it may pay a farmer to use his leisure and materials that would otherwise go to waste for carrying on a minor enterprise like poultry raising, while if he had to charge himself with the time the work consumed and with the value of the materials, the enterprise might appear to be a money losing one.

"Diversity of the farm business is, as a rule, an important factor in the success of farming." This, however, is modified by the statement that a medium degree of diversity sufficient to give good seasonal distribution of labor, complete utilization of land, and a considerable variety of sale products is better than either extreme diversity or a low degree of diversity.

It appears from this study that the application of economic principles to farm management practice is beneficial to the farmers; and there is a reciprocal advantage to the economist in having farm management surveys supply him with material and with concrete tests of the validity of his reasoning, as applied to a great industry.

E. A. GOLDENWEISER.

From the Federal Trade Commission has been received *Annual Report* for 1915 (pp. 14); and *Conference Rulings* (Bull. No. 1, Jan. 13, 1916, pp. 13).

The federal Department of Commerce has made an exhaustive report on *The Hoisery Industry* (Washington, 1915, pp. 258). Successive chapters deal with capital, profit, and turnover; cost and profit by establishments; cost and profit by specified units; manufacturing and selling; products, machinery, and processes; working conditions; foreign trade; and bibliography.

Among the reports published by the Chamber of Commerce of the United States presented at the fourth annual meeting held in Washington, February, 1916, are to be noted those on *Merchant Marine*

(pp. 29); *International Commercial Arbitration* (pp. 11); and *Maintenance of Resale Prices* (pp. 95).

The federal Department of Agriculture has published *A Study of the Tenant Systems of Farming in the Yazoo-Mississippi Delta*, by E. A. Boeger and E. A. Goldenweiser (Bull. 387, Jan., 1915, pp. 18); and *Brief History of the Movement to Secure Universal Cotton Standards* (Mar., 1916, pp. 50).

The *Hearings before the Committee on Ways and Means of the House of Representatives on Bill to Provide Revenue for the Government and to Establish and Maintain the Manufacture of Dyestuffs, held January 14-15, 1916*, are in printed form (Washington, pp. 248).

The National Foreign Trade Council has published a *South American Handbook*, a compilation of statistics regarding the public indebtedness, foreign commerce, and railway development of the South American republics (New York, 64 Stone St., pp. 55, 25c.).

A paper read before the Second Pan American Scientific Congress, December, 1915, on *The Economic Value of the Auction as a Distributor of Perishable Commodities*, by Victor K. McElhenry, Jr., has been reprinted (American Fruit and Produce Auction Association, 204 Franklin St., New York, pp. 19).

Corporations

PIPE-LINE TRANSPORTATION OF PETROLEUM. In response to a resolution of the Senate the Federal Trade Commission has issued the summary and conclusions of its report on *Pipe-Line Transportation of Petroleum (Letter of Submittal and Summary and Conclusions of the Report of the Federal Trade Commission on Pipe-Line Transportation of Petroleum*, Washington, Feb. 28, 1916, pp. x, 27). The full report will undoubtedly be published at some later date. The present report deals with the transportation of crude oil by the five large interstate pipe-lines tapping the Mid-Continent field, which comprises the oil-producing pools of Kansas, Oklahoma, northern Texas, and northern Louisiana. The Mid-Continent field contains the most productive oil-producing territory east of the Rocky Mountains. In 1914 this field yielded about 98,000,000 barrels of oil, or almost 37 per cent of the total production of the United States; and apparently its output has not yet reached its maximum.

During the period covered by this report none of the five leading pipe-line companies in the Mid-Continent field had, except for one

small shipment, acted as a common carrier in interstate commerce. By the Hepburn bill (1906) Congress had declared pipe-lines to be common carriers, but the constitutionality of this provision was disputed, and not until 1914 was this point settled. In that year the Supreme Court of the United States in "The Pipe Line Cases" held that pipe-lines engaged in interstate commerce were common carriers and subject to the jurisdiction of the Interstate Commerce Commission.¹ The pipe-line companies thereupon filed tariffs with the commission. This body, however, has not yet passed on the reasonableness of these rates; it is now conducting an investigation into the pipe-line situation, with particular reference to the Eastern fields.

On account of the failure of the pipe-line companies to accept their obligations as common carriers, the position of many of the independent refiners, as the report of the Federal Trade Commission shows, is still unsatisfactory. The greatest single item in the cost of refining is the crude oil, and the price of crude oil delivered at the refineries is to a large extent made up of the transportation charge. This indicates the importance of transportation as a strategic factor. Of the possible means of transportation by land, pipe-line transportation is the most economical. Because of the low cost of transporting crude oil by pipe-line the refining companies possessing pipe-line systems have been able to locate their refineries near the consuming centers; some of the Standard refineries at the seaboard derive a part of their crude oil supply from as far west as the Mid-Continent field. But though the cost of pipe-line transportation is very low, the pipeage rates are very high; and for this reason the refiners not allied with pipe-line systems have been compelled to locate near the crude oil fields, and generally at quite a distance from the markets. Use can not well be made of the railroads for the transportation of crude oil, except for comparatively short distances, since the rail rates are even higher than the pipe-line rates. To give an example cited in the report of the Federal Trade Commission, the railroad rate on oil from the Cushing field in Oklahoma to Whiting, Indiana, is about 62 cents per barrel, while by pipe-line it is only 42 cents; and to New York the rail rate is \$1.40 and the pipe-line rate only 70 cents.

While some of the independent refiners have their own pipe-line systems, none of the smaller ones do; the cost of pipe-line construction is so great that only a company of considerable size can afford to make the investment. The result, the Federal Trade Commission maintains, is that the prosperity and perhaps even the existence of

¹ 234 U. S. 548.

many small concerns is absolutely dependent on lower pipe-line rates.

The report on *Pipe-Line Transportation of Petroleum* is notable as being the first accurate investigation into the investment in pipe-line systems, and into the cost of their operation. But of more importance is the indication it gives as to the spirit in which the Federal Trade Commission will approach the problems with which it must deal. A reading of the report gives one the distinct impression that the Federal Trade Commission will uphold the high standard set by the Interstate Commerce Commission; that it will maintain a sane, scientific attitude, and will ever bear in mind the interests of the general public, which, after all, it was really created to serve.

ELIOT JONES.

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REPORT ON THE BOSTON SLIDING SCALE. The sliding scale method of regulating the price of gas has been in operation in Boston for ten years, and is the only instance in the United States in which this particular system of regulating gas rates has been tried. During recent years several bills have been introduced in the Massachusetts legislature to lower the price of gas in Boston. As a result of these efforts the last legislature instructed the Board of Gas and Electric Light Commissioners to conduct an investigation and make a report upon the operation and effect of the sliding scale, with recommendations as to the continuance or extension of this system. This report has now been submitted (*Report of the Board of Gas and Electric Light Commissioners Relative to the Price of Gas and Rate of Dividends as Applied to the Consolidated Gas Company, and known as the "London Sliding Scale,"* March, 1916, pp. 57).

The essential characteristic of the sliding scale is an "automatic and interdependent adjustment of the price of gas to consumers and of the rate of dividend to stockholders, whereby for every decrease or increase in price the stockholders are permitted an increase or suffer a decrease in the rate of dividend." Under the operation of this system dividends have been increased from 7 to 9 per cent and the price of gas has been lowered from 90 cents to 80 cents.

The board contrasts the value of the sliding scale with the long-established system of regulation applicable to the other gas companies of the commonwealth, and points out that under the former the state surrenders its power to reduce rates and must depend for reductions upon the self interest of the stockholders. The avowed purpose of the sliding scale is to increase the incentive to economical management

and low prices, by the prospect of an increase in dividends. The board admits that the cost of gas at the burner has been reduced, but maintains that the same is true of the companies not under the sliding scale, and is attributable to a greatly increased output without any corresponding increase in the actual expenses. That the sliding scale has been no more effective in securing rate reductions from the Boston Consolidated Gas Company than the system of regulation applicable to other companies, is evidenced, in the opinion of the board, by the fact that several other companies not under the sliding scale have reached the 80 cent price, all but two voluntarily, and that two others have even reached a 75 cent rate.

The board contends that there is upon the part of the company a "manifest tendency toward the exhaustion of its resources through the payment of dividends not fully earned, and without any adequate provision whatever for depreciation." The defense of the company is that the reductions in price proved to have been given too early and in anticipation of other advantages, and that, without the incentive of higher dividends, costs would not have been reduced nor the savings thus anticipated. The board replies: "But if the immediate rewards, direct and indirect, of this incentive are more important to the management than the permanent soundness of the investment, then the permitted dividends may be taken under this act with an apparent immediate advantage to the public, whatever its ultimate effect, but without consulting that other member of the partnership as to which policy is in the long run in its best interest."

The board asserts that "suspicion is aroused that the interests of the company may have been subordinated to the needs of the holding association (the Massachusetts Gas Companies) with its large issues of securities based primarily upon the gas supply of Boston, and that the freedom of action afforded by the sliding scale has aided this result." The board is outspoken in its conviction that the control of public utilities by holding associations makes it impossible to guard the resources of the corporations under supervision, which may, through dissipation of their properties become so enfeebled as to forbid hope of adequate service at low prices. It therefore recommends that the sliding scale should be repealed unless the Boston Company is entirely disassociated from the Massachusetts Gas Companies and its stock distributed directly among investors.

It is contended by the board that the conditions in the United States, and in England where the sliding scale is in vogue, are radically different. For in England direct interference with gas prices is practically

unknown and the sliding scale is the alternative to the maximum dividend method of regulation, under which the maximum dividends are regulated by public authority. The board regards it as inexpedient to extend the sliding scale system to the other gas companies of the commonwealth, asserting that the investigation has not revealed any such advantages of the sliding scale method as to justify its substitution for the system of regulation prevailing for the other companies. Upon the whole, the impression obtained from the report is that the sliding scale, as a device of regulation, has not demonstrated itself as superior to the ordinary method of regulation by commission action, and that it can hardly be said to have completely justified the hopes of its advocates.

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Relating to the subject of valuation, briefs have been presented before the Interstate Commerce Commission by the railroad companies represented by the Presidents' Conference Committee (Thomas W. Hulme, secretary, Broad St., Philadelphia, Sept. 1, 1915, pp. 544); *Brief in Reply Filed on Behalf of the Railroad Companies Represented by the Presidents' Conference Committee* (Jan. 15, 1916, pp. 206); *Discussion of Some of the Fundamental Principles Involved in the Valuation of the Property of Common Carriers: Oral Arguments Presented by Counsel of the Presidents' Conference Committee*, September 30 and October 1, 1915 (Office of the general secretary of the committee, Philadelphia, pp. 111); and *Conference between Division of Valuation, Members of State Commissions, and Representatives of the Presidents' Conference Committee of the Railroads* (Washington, May 27, 28, 29, 1915, pp. 172).

The Opinion of the Public Service Commission of Maryland in the Matter of the Chesapeake and Potomac Telephone Company of Baltimore City Covering an Investigation of the Rates and Charges, Property and Affairs, Case No. 690 (Mar. 8, 1916, pp. 104) contains a discussion of valuation and principles governing the decision.

Bearing upon the same subject of valuation is *Brief on Behalf of the City of Cincinnati*, submitted before the Public Utilities Commission of Ohio with regard to the appraisal of "The Property of the Cincinnati Gas & Electric Company and the Property of the Union Gas & Electric Company Used in Electrical Service," prepared by the office of the city solicitor of Cincinnati (pp. 82).

The Bureau of Railway Economics, in Bulletin 88, makes a *Summary of Railway Returns for the Fiscal Year Ending June 30, 1915* (Washington, pp. 23).

The Department of Public Utilities of Cleveland has recently issued *The Cleveland Municipal Lighting Plant* (pp. 96).

The National Shawmut Bank has prepared a pamphlet on *The Boston and Maine Railroad* in which there is a considerable amount of historical material (Boston, 1916, pp. 20).

Among the public utility reports recently received are:

Report of the Public Service Commission of Maryland, 1915 (Baltimore, pp. 569).

Reports of the Board of Public Utility Commissioners of the State of New Jersey, vol. III, May, 1914—July, 1915 (pp. 570).

Sixth Annual Report of the Quebec Public Utilities Commission, 1915 (pp. 30).

Railroad pamphlets to be noted are:

Twenty-ninth Annual Report of the Interstate Commerce Commission, part I, December 1, 1915 (pp. 188).

Proceedings of the Semi-Annual Meeting of the Railway Development Association, held in New York, Nov., 1915 (H. O. Hartzell, secretary, Baltimore & Ohio R. R., Baltimore, pp. 86).

What the Press is Saying about the Demand of the Railway Engineers and Trainmen for \$100,000,000 Increase in Wages, published by the Association of Western Railways (Chicago, pp. 48).

Address to the Chamber of Commerce of the United States of America, by Howard Elliott, February 8, 1916.

A Study and Review of the Problem of Passenger Transportation in Philadelphia by a Unified System of Lines, by William S. Twining (Philadelphia, Dept. of City Transit, Mar. 29, 1916, pp. 97).

Labor

COLLECTIVE BARGAINING IN THE ANTHRACITE COAL INDUSTRY. The recent negotiation of a new four-year agreement between the operators of the anthracite coal mines and their employees gives a timely interest to Bulletin No. 191 issued by the United States Bureau of Labor Statistics in March, 1916. The title is *Collective Bargaining in the Anthracite Coal Industry* (pp. 171) and the author is Mr. Edgar Sydenstricker, who carried out his investigation in this field originally for the Commission on Industrial Relations.

The study is divided into four main parts: an historical account of the development of collective bargaining in the anthracite industry; an analysis of the methods of making agreements between the operators and their employees; a discussion of the actual settlement of disputes under the agreements; and an estimate of the success of the plan.

Prior to 1899, except for spasmodic attempts at organization, the mine workers of Pennsylvania made no progress toward collective bargaining. The Bates Union in 1848 and the Workingmen's Benevolent Association in the late sixties maintained themselves for only a few years. From 1875 to 1900 the hold of the operators on the industry was absolute and collective bargaining was non-existent. The English, Welsh, and German miners were rapidly supplanted by immigrants from southern and southeastern Europe; the average days worked per annum decreased to 150; the actual weight of the ton brought from the mine was from 2700 to 4000 pounds though it was sold in tons of 2240 pounds; the average weekly wage of the miner was \$9; purchases had to be made from company stores at exorbitant prices; and various other devices were used by the operators to reduce further the already scanty earnings. The advent of the United Mine Workers in 1899 brought the first promise of improvement in these unsatisfactory conditions.

As the result of the strike in 1900 an advance of 10 per cent in wages and a few other concessions were obtained. A demand for further improvement in working conditions led to the great strike of 1902 which was brought to an end by an agreement to submit the controversy to arbitration. For this purpose the Anthracite Coal Strike Commission was appointed by the President of the United States, and its award in 1903 has furnished the basis for collective bargaining in the anthracite field. The original award continued in force until March 31, 1906, and in 1909 and 1912 new agreements were negotiated, the last running for four years. While the 1903 award has been the basis for subsequent agreements there has been a constant tendency toward improving the method and broadening the scope of collective bargaining.

The possibility of collective bargaining in the anthracite industry is increased by three causes: (1) practically the whole industry is owned by a few large operators; (2) the major portion of the workmen are now united through the mine workers union; (3) the industry is virtually a monopoly, having to meet very little competition from bituminous coal. The principal issues which have come up for set-

tlement have related to wages, hours of work, recognition of the union, improvement in the methods for settling disputes, and the length of time during which the agreements were to remain in force.

The methods provided to facilitate collective bargaining by the award of the commission of 1903, and as subsequently elaborated, call for conciliation with a possible resort if necessary to arbitration. The machinery for conciliation, which is the chief reliance in maintaining harmony between the operators and workmen, may be considered under two main heads: (1) the machinery for negotiating agreements; (2) that for adjusting disputes which arise during the life of the agreements. As to the first, the agreements are drawn up by a conference committee which has usually been composed of about eighteen employers and about twice that number of representatives of the mine workers. This joint conference committee has thus far always been able to arrange a basis for agreement, though "peaceful" suspension of work occurred at the expiration of the agreement in 1906 and 1912. If the committee should fail to reach an agreement arbitration might be resorted to but this is only a last hope, for arbitration has not been favorably regarded by either side.

After the agreement has gone into effect conciliation is provided for by the creation of a permanent board of conciliation composed of six persons, one representative of the employers and one of the miners for each of the three anthracite districts. In addition there are grievance committees composed of three representatives of the mine workers in each locality. Effort is first made to settle disputes where they arise through the local grievance committee and the representatives of the employers; if this fails, by successive steps the grievance goes to the two members of the conciliation board from the district in which the issue has been raised, then to the full conciliation board, and finally, in case of failure to reach an adjustment, is submitted for decision to an umpire appointed by a federal judge in the anthracite region.

Collective bargaining in the anthracite industry has been successful in maintaining almost continuous industrial peace since 1902, but this, as the author points out, is not the sole criterion of the success of the system. The welfare of the workers, the profitableness of the industry and the degree of satisfaction felt by both parties must be considered also. In all of these respects Mr. Sydenstricker regards the system of collective bargaining in the anthracite industry as a demonstrated success.

N. R. WHITNEY.

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The United States Department of Labor has issued the following bulletins:

No. 175, *Summary of the Report on Condition of Woman and Child Wage Earners in the United States* (Dec., 1915, pp. 445).

No. 183, *Regularity of Employment in the Women's Ready-to-Wear Garment Industries* (Oct., 1915, pp. 155). This investigation is based upon a study of the industry in New York, Chicago, Cleveland, and Boston, embracing about three fourths of the industry of the country. The irregularity of employment is very marked and as yet regularization has received but slight attention.

No. 186, *Labor Legislation of 1915* (Dec., 1915, pp. 494).

The Children's Bureau of the United States Department of Labor has prepared a compilation containing the texts of the child labor laws in force October 1, 1915, under the title, *Child Labor Legislation in the United States*, by Helen L. Sumner and Ella A. Merritt (Washington, 1915, pp. 475, etc.). The first part has elaborate analyses and summaries.

No. 4 of volume II of the Bulletin of the Industrial Commission of Ohio is devoted to *Rates of Wages, Hours of Labor, and Fluctuation of Employment in Ohio in 1914* (Columbus, Sept. 15, 1915, pp. 317); No. 5 deals with *Inspection of Workshops, Factories, and Public Buildings in Ohio* (Sept. 29, 1915, pp. 236); No. 6 relates to *Physical Examination of Wage-Earners in Ohio in 1914* (pp. 29). Physical examinations of applicants had been conducted by only a few establishments other than railroads and street railroads in Ohio prior to 1914. For the statistical data in this report a form was sent to nearly 300 employers in the state not including railroads doing an inter-state business. There are at least 42 establishments employing about 68,500 persons which require physical examination of applicants for work. No. 7 gives *Statistics of Mines and Quarries in Ohio, 1914* (pp. 104); No. 8 deals with *Union Scale of Wages and Hours of Labor in Ohio on May 15, 1915* (Dec., 1915, pp. 107).

Bearing upon the subject of *Physical Examination of Employees* is a pamphlet by John B. Andrews, secretary of the American Association for Labor Legislation, being a reprint of a paper read before the Industrial Hygiene Section of the American Health Association, September 10, 1915 (pp. 9).

The *Fourth Report of the Factory Investigating Commission of New York, 1915*, comprises five volumes. Volume I contains an appendix on bills recommended by the commission and has a "sympos-

ium" on the minimum wage problem covering 300 pages. Volume II deals with general wage investigations. Volume III has a statistical appendix; volume IV, a report on vocational training, cost of living in New York state, and minimum wage legislation in Australasia. Volume V is a reprint of testimony.

The Industrial Welfare Commission of California has published a *Report on Wage Board in the Fruit and Vegetable Canning Industry* (948 Market St., San Francisco, pp. 16).

The Minimum Wage Commission of Massachusetts has issued *Wages of Women in the Paper-Box Factories in Massachusetts* (Boston, Bull. No. 8, Sept., 1915, pp. 38); *Wages of Women in Hoisery and Knit Goods Factories in Massachusetts* (Bull. No. 10, Jan., 1916, pp. 37); and *Report of the Minimum Wage Commission, 1915* (Bull. No. 11, Jan., 1916, pp. 35).

The federal Bureau of Mines makes a report on *Metal-Mine Accidents in the United States during 1914*, compiled by Albert H. Fay (Washington, 1916, pp. 96). During 1914 there was a slight decrease in fatality.

The *Second Annual Report of the Industrial Accident Board of Massachusetts* for the year 1913-1914 contains an organization chart showing functions of the board (Boston, pp. 483).

The federal Bureau of Labor Statistics has published a list of *Books and Periodicals on Accident and Disease Prevention in Industry in the Library of the Bureau of Labor Statistics* (pp. 23).

The National Civic Federation has recently issued a report on *Profit Sharing by American Employers* (New York, Metropolitan Tower, 1916, pp. 261, \$2). This contains a description of about 200 plans which have been subjected to trial and includes examples from England and France. There is also a discussion on profit sharing by employers, representatives of organized labor, and special students.

Other labor reports recently received are:

Twenty-second Annual Report of the Chief State Factory Inspector of Illinois, 1915 (pp. 235). Beginning with page 132, this has considerable matter on occupational diseases.

Eighteenth Annual Report of the Bureau of Labor and Industrial Statistics of the State of Virginia, 1915 (Richmond, pp. 190).

Fourth Annual Report of the Bureau of Labor of Porto Rico (San Juan, Feb. 25, 1916, pp. 41).

Money, Prices, Credit, and Banking

THE EQUATION OF EXCHANGE FOR 1915. The equation of exchange as calculated by the usual methods is¹:

$$\begin{array}{l} \text{Circ. of money (39)} + \text{Circ. of checks (503)} = \text{Value of goods bought (543)} \\ \hline \text{Money} \times \text{its velocity} + \text{Deposits} \times \text{their veloc.} = \text{Trade} \times \text{scale of prices} \\ M \times V + M' \times V' = T \times P \\ 1.79 \times 22 + 9.39 \times 53.6 = 512 \times 106 \text{ per cent.} \end{array}$$

That is, the money in circulation (outside of banks and the United States Treasury) was 1.79 billions of dollars and changed hands about 22 times a year, thus effecting 39 billions of exchanges; the volume of deposits subject to check was 9.39 billions and changed hands about 53.6 times a year, affecting 503 billions of exchanges and making, with the monetary circulation (39), a total of 543 billions. This was the expenditure to pay for a volume of trade of 512 billion units (a "unit" being that amount of goods which in the base year (1909) was worth \$1), maintained at prices of 106 per cent, *i.e.*, prices averaging 6 per cent higher than the prices of the base year.

The large diagram² affords full comparison (both visual and numerical) between these figures for 1915 and those for previous years. Thus, comparing 1915 with 1914, we note a decrease in money in circulation of 8 per cent, an increase of 29 per cent (conjectural rather than estimated) in the velocity of circulation of this money, an

¹ In the data for calculating $M'V'$, the federal reserve clearings were included.

² The symbolism of the diagrams is explained in the sentences preceding them. The dotted lines connecting the centers of the black areas virtually constitute plotted curves showing the increase or decrease in the scale of prices and in the velocities of circulation of money and of credit. For details the reader is referred to previous articles in the *American Economic Review*, especially June 1912, pp. 311-319 and June 1915, p. 408. For the present year the calculations of the volume of trade "T" as made independently of the other magnitudes (giving 501 billions by one method and 540 by another), were regarded as of so little value that no use was made of them. The figure 512 for "T" was derived indirectly from the remaining magnitudes of the equation of exchange by solving the equation itself, *i.e.*, by using the formula $T = (MV + M'V') \div P$. Since we know with fair accuracy MV , $M'V'$ and P the resulting value of T is fairly accurate. This indirect determination of T has always had more weight than the independent estimates, even in previous years. The independent estimates have, in fact, been of very little value since the regrettable discontinuance, in 1912, of the statistics of internal commerce in the United States, formerly published by the Bureau of Statistics (now the Bureau of Foreign and Domestic Commerce of the Department of Commerce).

increase in deposits of 6 per cent, an increase in the velocity of deposits of 14 per cent, a very large increase in the volume of trade amounting to about 19 per cent, and a rise in the price level of 2 per cent. These changes brought about in 1915 have been the reverse of those occurring the previous year. That is, the figures for 1915 show the completion of the reaction from the shock of war. The whole cycle of changes between 1913 and 1915 can be seen by mentally substituting the small diagram (for six periods of 1914) in place of the 1914 portion of the large diagram.

The changes found agree with those forecasted a year ago. The present outlook seems to be a general expansion in all six of the magnitudes in the equation of exchange.

A large part of the increase of 19 per cent in the volume of trade was undoubtedly due to the resumption and great expansion of the trade in securities. The trade in securities in 1915 was in fact some 250 per cent greater than in 1914 while ordinary commerce was only about $3\frac{1}{2}$ per cent larger in 1915 than 1914.

It is interesting to note that we can take advantage of the great and unusual contrast between these two figures (250 per cent and $3\frac{1}{2}$ per cent) to calculate, indirectly, the volume of trade in securities. This calculation will form the subject of another article which I hope to publish in the June number of the *Quarterly Publications of the American Statistical Association*.

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COST OF LIVING REPORTS. The daily wage of \$2.50 which has been paid by New York City to its unskilled laborers for several years seems to have been based neither upon the competitive rates nor upon any other scientific foundation. "Upon the theory that the City of New York wishes to pay its employees salaries or wages which bear a proper relation to the salaries or wages prevailing among representative private employers, and at the same time wishes itself to be a model employer, the Bureau of Standards decided that it was essential to make some study of the cost of living for unskilled laborers in New York City." So, in connection with the budget for the street cleaning service, an investigation was made, with the assistance of the Bureau of Municipal Research (*Report of the Cost of Living for an Unskilled Laborer's Family in New York City*, submitted by the Bureau of Standards to the Committee on Salaries and Grades of the Board of Estimate and Appointment, 1915, pp. 57). A careful survey of the

cost-of-living literature was made, and the work of Chapin, More, Bruère, Nearing, Ryan, and the New York State Factory Investigating Commission was carefully digested and criticised. Opinions were obtained from persons engaged in various lines of social work, and data on special subjects were collected from such excellent sources as Charles Molesphini, real estate editor of the *Evening Post*, and Oscar H. Fogg, utilization engineer for the Consolidated Gas Company. From members of the Street Cleaning Department, twenty family budgets were procured, and original studies were made of the prices in retail stores. All these data are presented in a series of appendices.

The main body of the report occupies but six pages, commencing with the conclusion. The one-year budget estimated for a family consisting of a father, mother, boy of thirteen, girl of ten, and boy of six is as follows:

Housing	\$168.00
Carfare	30.30
Food	380.00
Clothing	104.00
Fuel and Light	42.00
Health	20.00
Insurance	22.88
Sundries	73.00
Total	<hr/> \$840.18

It is interesting to note that the estimate comes out within 18 cents of \$70 per month. Of course it is possible to discuss without end any estimate of the cost of living. As it is probably impossible to agree on a typical family, it seems that one choice is as good as another, and certainly no fault can be found with the one selected by the Bureau of Standards. There are, however, two items which may be criticised. The allowance for clothing seems very meager. In the first place, the sums allowed seem too small to purchase good garments, much less good-looking ones. Second, the allowance for clothing is less than one half of the average of \$210.06 actually spent by the families of twenty street cleaners, households with a mean total income of \$841.01. The second weakness seems to lie in the estimate for insurance. It is based upon the assumption that all the policies should be in the industrial companies. Doubtless that is the way most workingmen insure their families, but an additional allowance of \$10 or \$12 a year would permit the man to carry a thousand dollar regular straight life policy, in place of the five hundred dollar industrial policy.

Considered as a whole, the estimate of the bureau seems very fair and carefully balanced. The most interesting feature of the report,

however, is not its content and method, but its use. The Bureau of Standards recommended no maximum rates in the Street Cleaning Department below \$840, and included in its scheme, a beginning wage of \$720, with annual increases of \$24, on the theory that employees will enter the city service early, and that as they grow older, their responsibilities will increase, and their needs will approach the maximum. The maximum rate of \$840 was officially adopted by the Street Cleaning Department for sweepers, and higher scales were worked out for more responsible positions. The 1917 budget is expected to extend the application of the recommendations to other unskilled laborers, and by 1919 the full schedule will probably be in operation.

In summary it may be suggested that, although the report is based on very little original investigation and is largely an adaptation of previous studies, it has been well done, because it had a definite aim, and it actually has been used to standardize salaries.

The recent incorporation in the Ohio constitution of the clause permitting minimum wage legislation and the wide popular interest in the problem of the cost of living impelled the Industrial Commission to undertake an investigation of *The Cost of Living of Working Women in Ohio* (Report No. 14 of the Department of Investigation and Statistics, Industrial Commission of Ohio, Columbus, 1915, pp. 255). As it seems unlikely that the immediate future will witness living wage laws for men, the study was directed to self-supporting women of at least eighteen years of age who resided away from home. Moreover, only girls of races having the "American standard of living" to maintain on incomes that did not exceed \$624 per annum were considered. Although the conduct of the investigation and the preparation of the report were in the hands of Chief Statistician Fred C. Croxton and his regular staff, the facts were gathered mainly by volunteer workers under rather close supervision. Naturally the result was a disappointingly small number of completed returns—164 carefully estimated annual budgets, and 208 accurate account books kept for four weeks or more, the average being six weeks.

The somewhat meager data are carefully presented for each item of expenditure with a few correlation tables and many individual illustrations full of human interest. There are perhaps three directions in which knowledge of working women's problems has been advanced by this study. In the first place, the relation of gifts to income has been very well worked out (p. 35 and p. 98). Second, the

discussion of light housekeeping as a means of economizing is decidedly good. It was shown that the average weekly expenditure of 117 individuals who were boarders and lodgers was \$4.04 per week for food and shelter as contrasted with \$3.60 for 37 light housekeepers. But the incidental expenses of the light housekeepers were on the average 36 cents more per week, bringing their total cost up to about \$3.96 attributable to board and lodging. Perhaps this method of comparison is not absolutely accurate, for the light housekeepers have additional strains from their work, and additional pleasures from their manner of living (p. 42, *et passim*). A third point that is well driven home is the assertion that the expenditure for clothing depends more on income than on occupation (p. 53). The factory employees with average incomes of \$417.69 spent an average of \$98.81 for clothing, and the saleswomen with mean incomes of \$400.63 spent \$92.91.

As a description of life among the working women, this study is interesting, but its title is misleading. Showing how women with a mean income of \$430.17 distribute their average expenditures of \$413.06 between food and shelter, clothing, laundry, and other items is not showing what it costs to live on a subsistence basis, on an efficiency standard or on any other plane. The reader is told, for example, that the average expenditure for recreation and amusements, \$17.58, is not sufficient to afford very much recreation (p. 87) and that the mean outlay for education, \$4.62, secures very little (p. 91), but he is not told what would be a reasonable sum. In truth it would be difficult for a person desiring to determine a living wage, even by searching the large appendix, to arrive at very satisfactory conclusions from this report.

Although the *Report on the Cost of Living, 1891-1914* (Wellington, N. Z., 1915, pp. 168, 1s.) contributes no new ideas to the theory of the cost of living, it is valuable for its promise of carefully constructed, regular index numbers of retail prices of rent, fuels, and foods in New Zealand.

It is gratifying to find a government statistician who knows how to use the Pearsonian coefficient of correlation as does Mr. Frazer in discussing the relation of retail prices of dairy products to the exports of butter and cheese. He finds a negative correlation of $-.416 \pm$ with a probable error of .028, and concludes that increased production causes a fall in home prices which makes possible advantageous exporting. In contrast with this relation between the exports of butter and cheese and their prices in New Zealand, is the relation of these same

prices to the shipments to Australia. In this case there is a positive correlation of $.329 \pm$ with a probable error of $.030$, and the conclusion is drawn that *need* in Australia occasions imports of butter and cheese from New Zealand, and therefore causes a rise in prices of dairy products there. This reasoning is fortified by descriptions of the conditions in the two countries, and of the intercourse of New Zealand with the world as a whole. Thus strengthened, it is convincing.

Excellent reasoning, well backed by illustration and statistics is characteristic of the entire report which attempts to go somewhat beyond the usual scope of a price study. For example, the food prices are divided into three food groups, the first of which, "groceries," is still further subdivided. The prices of five "home products," bread, flour, oatmeal, potatoes, and onions, fluctuated in cycles of about four years with a total rise in twenty-four years of 24 per cent. Prices of sugar likewise fluctuated, but tended to decrease. Its price fell greatly after it was put upon the free list in 1907, and then began a gradual climb. "General groceries" were much more stable in price, falling in small cycles from 1,101 in 1891 to 986 in 1909 and rising to 1063 in 1914. Comparative graphs show that each lowering of the tariff was followed by an immediate decline in the index number for general groceries, and later by a rise. The second food group, "dairy products," rose in price almost steadily during the twenty-four years from 806 to 1054, and the third group, "meats," increased even more (from 864 to 1158). Combining all these groups an index number is calculated which shows a general upward trend from 918 in 1891 to 1098 in 1914, although until 1897 the movement was down to 904, and there have been numerous fluctuations.

A somewhat daring departure is made in the calculation of an index number for house rent. This is done by observing the rents of different types of dwellings having from three to nine rooms, and weighting the results according to the number of houses of each type at the census. This index rose each year from 698 in 1891 to 996 in 1906, fell to 984 in 1907 and then shot up in 1912, 1913, and 1914 to 1048. Fuel and light gave more trouble because of the wide diversity of practice and the enlarging use of electricity, but beginning with 1907 good data were obtainable. Combining the cost of food and housing there is shown an increase of 29.4 per cent in the twenty-four years.

Special chapters deal ably with the changes in the purchasing power of money, with the comparison of prices in the leading twenty-five towns and cities, and with the effect of the war on prices. Each is well worked out, as far as the limitations of the data permit. Espe-

cially interesting are the studies of seasonal price fluctuations in chapter 4. The war affected prices in Europe by precipitating a sharp rise, followed within a fortnight by a decline, and then a further rise. In New Zealand the outbreak of the hostilities was followed by a decline in the prices of dairy products until October, when they began to demand higher prices. General groceries maintained an almost constant level for the year. All other classes of food-stuffs rose promptly until February, and then wavered about the same level until the end of the first year of the war.

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The federal Bureau of Labor Statistics, in Bulletin 184, continues its series on *Retail Prices, 1907 to June, 1915* (Washington, Nov., 1915, pp. 413).

The *Annual Report of the Superintendent of Banks of the State of New York* for 1915 (Albany, pp. 441) notes the experience under the new banking law of 1914 which brought private bankers under supervision and also provided for the organization by savings and loan associations of the Land Bank of the State of New York and of Credit Unions. The first series of bonds issued by the Land Bank was purchased by the Guaranty Trust Company and the proceeds of this sale have been invested largely in farm mortgages in six different counties. Seventeen credit unions were incorporated, a number of large corporations actively coöoperating for this purpose in order to encourage thrift among their employees.

The *Sixth Annual Report of the Bank Commissioner of Maryland* for 1915 (Garrett Bldg., Baltimore, pp. 202) states that no trust company in Maryland intends to seek admittance to the federal reserve system. On the other hand, two national banks during the year reorganized under state charters.

The *Proceedings of the Arizona Bankers Association*, twelfth annual session, held November 12-13, 1915 (Morris Goldwater, secretary, Commercial Trust and Savings Bank, Prescott, Ariz., vol. IX, pp. 155) contains an address on federal reserve banks by Russell Lowry, deputy governor of the Federal Reserve Bank in San Francisco. There is also an informing paper on the agricultural development of Arizona, containing the results of a questionnaire sent to farmers throughout the state in regard to their financial condition and need of credit.

For the purpose of securing more definite data in regard to land settlement in California and the influences affecting rural development, the State Rural Credits and Land Colonization Commission, the University of California, and the Commonwealth Club are coöperating in making a study on *Land Settlement and Rural Credits in California* (Coöperative Land Settlement Investigations, University of California, Berkeley, pp. 4). This inquiry will continue through the current year.

The Guaranty Trust Company of New York has published a new *Digest of the Federal Reserve Act*.

The National City Bank of New York has issued a pamphlet on *Latin American Monetary Systems and Exchange Conditions*, compiled by Joseph T. Cosby (pp. 31).

The Bank Director and the Clayton Law (pp. 24) has been received from the Mechanics and Metals National Bank, New York.

The Federal Reserve Bank of St. Louis has printed a booklet on *Rediscounting with the Federal Reserve Bank of St. Louis* (Feb., 1916, pp. 58).

From the Statistical Branch of the Department of Labour of Canada has been received a report on *The Rise in Prices and the Cost of Living in Canada, 1900-1914*. Part I deals with a statistical examination of economic causes and the second volume contains the report of the board (Ottawa, 1915, pp. xvii, 1108).

Public Finance

The Chamber of Commerce of the United States has published in a reprint *Report of Committee on Permanent Tariff Commission*, presented at the fourth annual meeting held in Washington, Feb. 8-10, 1916 (pp. 10).

The Bureau of the Census presents in convenient form *Comparative Financial Statistics of Cities under Council and Commission Government, 1913 and 1915* (Washington, 1916, pp. 15). These tables give per capita statistics for three groups of eight cities each. The first comprises cities which had the council form of government during 1913 and 1915; the second, cities which had the commission form during those years; and the third, cities which had the council form in 1913 and the commission form in 1915.

In 1915 a special commission was authorized by the legislature of Massachusetts to report upon the advisability of changes in the tax

laws of that state. *The Report of the Special Commission on Taxation* appeared in January, 1916 (Boston, House No. 1700, pp. 126). The commission recommended an income tax of 6 per cent on what is known as intangible property and a tax of 1½ per cent on incomes derived from annuities, professions, employments, trades, and business.

In March, 1915, the Legislature of New Jersey authorized the appointment of a commission for the *Survey of Municipal Financing*, which has now made its report (E. Morgan Barradale, secretary, Essex, N. J.). Its findings are similar to those adopted by the Commission on Municipal Government which reported in 1906. The commission reviewed the operation of the statutes now in force, the practices employed, and the general conditions present in financing municipal and county affairs. It is advised that an amendment of the general law be enacted that shall specifically direct the creation and the retirement of public obligations for all classes of municipalities and counties.

The Indiana Bureau of Legislative Information is circulating a pamphlet entitled *The Budget*, prepared by William T. Donaldson, assistant budget commissioner of Ohio (Indianapolis, Jan., 1916, pp. 30). This shows what is the object of a proper budget and the value of comparisons.

The Rhode Island Tax Officials' Association has begun the publication of a bulletin. No. 1, issued January, 1916, gives an account of the fourth annual meeting and a verbatim report of a paper on "Valuation and assessment of city real estate," by Lawson Purdy.

The Committee on City Finances of the Cleveland Chamber of Commerce, in a pamphlet on *How Uncle Mose' Spends His Money*, describes by text and charts the expenditures of the city of Cleveland, making the matter as simple as possible for the reader.

The following tax documents are to be noted:

Supplementary Report of the Tax Commissioner, Attorney-General, and the Chairman of the Homestead Commission of Massachusetts Relating to Uniform Methods of Procedure for Taking Land for Public Purposes (Boston, 1916, House No. 1750, pp. 78).

The Final Report of the Committee on Taxation of the City of New York (New York, 1916, pp. 398).

Financial Summary for the City of New York for the year ended December 31, 1915 (William A. Prendergast, comptroller, pp. 137).

The Inheritance Tax Act of 1916 of Rhode Island (Providence, 1916, pp. 24).

Revenue Laws of the State of Iowa, 1915 (Des Moines, pp. 168).

The First Biennial Report of the State Tax Commission of Maryland (Baltimore, Jan. 15, 1916, pp. 265).

Amended Taxation and Revenue Laws and Duties of County Assessors of Wyoming, 1915 (pp. 41).

Inheritance Tax Laws of California, issued by the state controller (Sacramento, 1915, pp. 62).

Demography

The New York Congestion Committee has published a pamphlet on *Distribution of Population; What is Being Done About It* (320 Broadway, New York, pp. 28).

The Annual Report of the Commissioner General of Immigration, 1915 (Washington, pp. 272) contains charts on the "wave of immigration" from all countries during the past 96 years and a colored chart showing immigration into the United States from the different countries during the past century.

Insurance and Pensions

Public Health Bulletin No. 76 published by the United States Public Health Service is devoted to the subject of *Health Insurance, Its Relation to the Public Health*, by B. S. Warren and Edgar Sydenstricker (Washington, 1916, pp. 176).

The Commission on Pensions in the City of New York has issued *Report on the Pension Funds of the City of New York*, part I, *Operation of the Nine Existing Pension Funds* (pp. 171, 1916); and *Report on the Teachers' Retirement Fund of the City of New York* (1915, pp. 177).

From the office of the National Civic Federation is received a pamphlet on *The Problem of Pensions, Federal, State, Municipal, and Industrial*, a report presented at a meeting of the federation in January, 1916 (New York, 1 Madison Ave., pp. 15). Tables show the pensions of over fifty different corporations.

The Massachusetts Committee on Unemployment has prepared a second bulletin on *Unemployment Insurance for Massachusetts* containing draft of an act with an introduction and notes (Boston, 75 State St., pp. 27).

The black areas indicate weights, or counter-poises, the equilibrium of which corresponds to the "equation of exchange."
These black areas from left to right represent:

M' , i.e., bank deposits subject to check in billions of dollars.

M , i.e., money in circulation in the United States (outside of the United States Treasury and the banks), in billions of dollars.

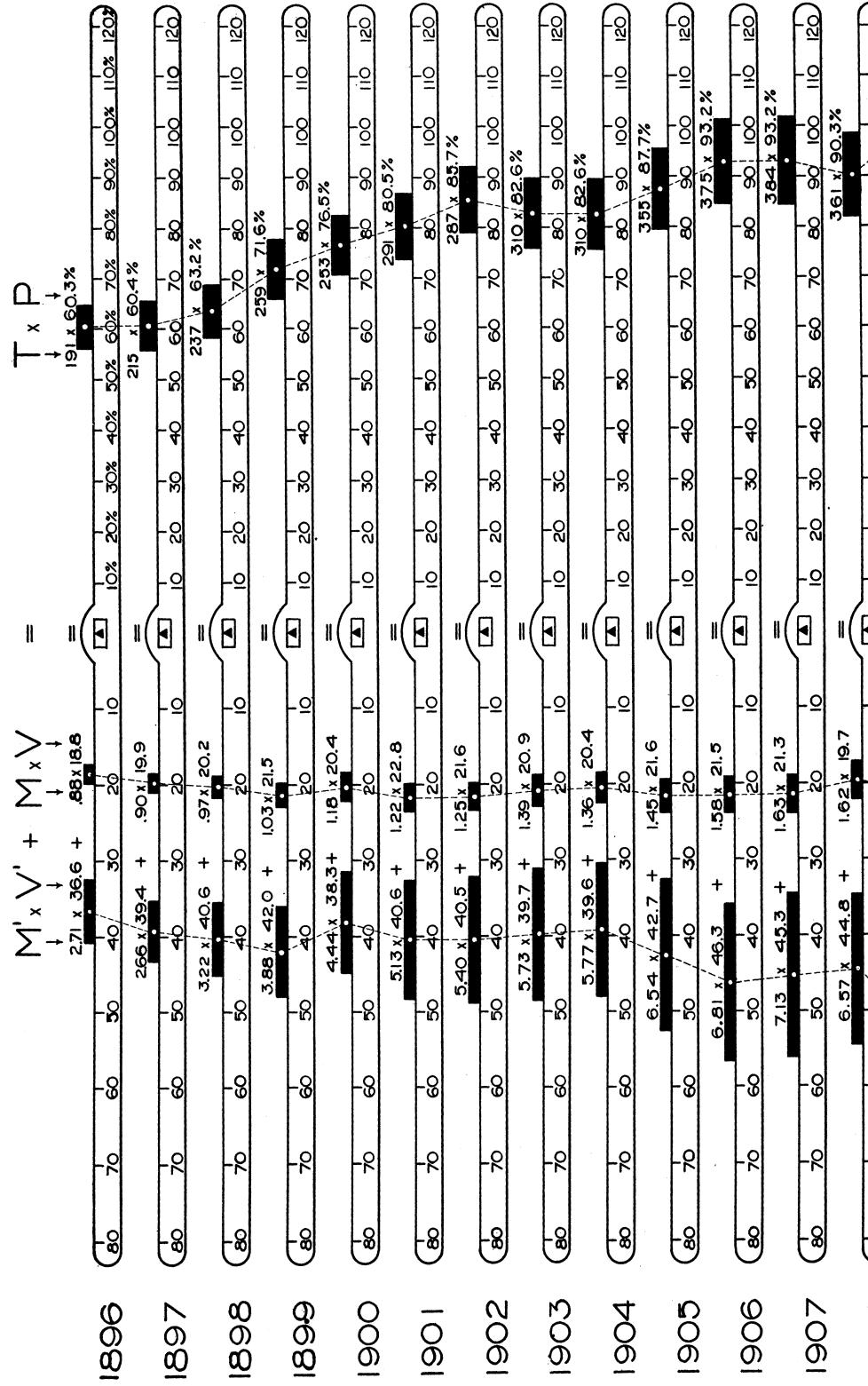
T , i.e., the volume of trade circulated in billions of "units" (each "unit" being that quantity which could be purchased for one dollar in 1909).

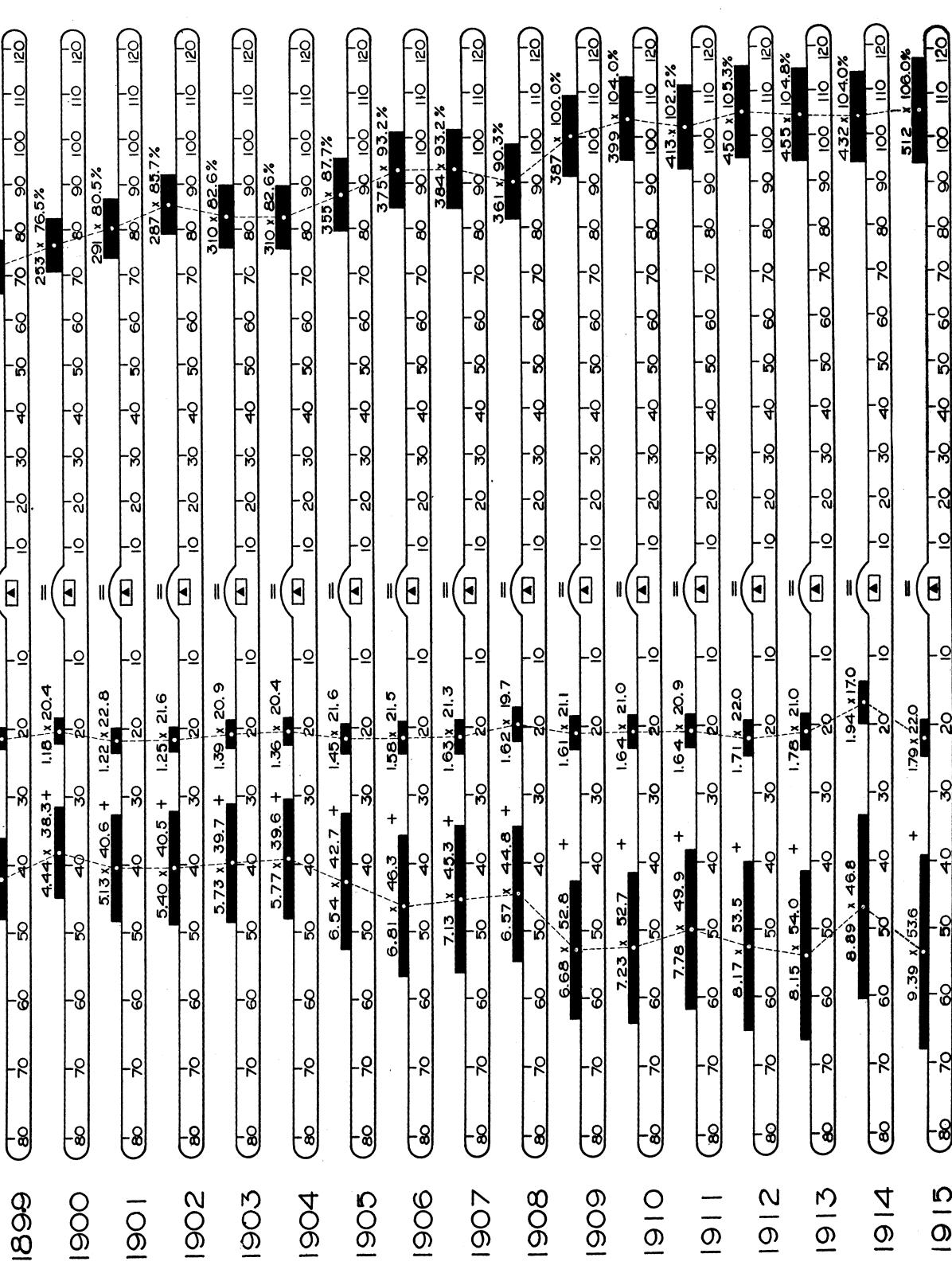
The lever arms of the above three weights represent:

V' , i.e., the velocity of circulation ("activity") of the deposits, M' .

V , i.e., the velocity of circulation of the money, M .

P , i.e., the index number, or scale of prices, at which the trade, T , is conducted. (This scale of prices is measured as a percentage of the scale of prices of 1909.)





1909	6.68 x 52.8	+	1.61 x 21.1	=	387 x 100.0%
	7.23 x 52.7	+	1.64 x 21.0	=	399 x 104.0%
1910	7.78 x 49.9	+	1.64 x 20.9	=	413 x 102.2%
	8.17 x 53.5	+	1.71 x 22.0	=	450 x 105.3%
1911	8.15 x 54.0	+	1.78 x 21.0	=	455 x 104.8%
1912	8.89 x 46.8	+	1.94 x 17.0	=	432 x 104.0%
1913	9.39 x 53.6	+	1.79 x 22.0	=	512 x 106.0%
1914	9.12 x 48.9	+	1.80 x 17.8	=	
1915	9.34 x 47.0	+	1.73 x 17.1	=	

(V', V, and T have been multiplied by twelve, to convert them from rates per month to rates per year.)

				T x P	
1914	9.12 x 48.9	+	1.77 x 19.4	=	496 x 105.2%
JAN.	9.27 x 38.4	+	1.89 x 13.9	=	460 x 104.2%
MAR.	9.27 x 45.1	+	2.06 x 16.4	=	459 x 102.2%
JUNE	7.72 x 54.5	+	2.36 x 19.8	=	356 x 107.3%
SEPT.					415 x 103.6%
OCT.					459 x 102.1%
DEC.					